FINAL REPORT

The Corps of Re-Discovery:
Updating the Lewis and Clark Journals

Submitted to
Consortium for Education
U.S. Department of Education
Kirk Winters, Manager

By
Fort Clatsop National Memorial
on behalf of several federal and non-federal partners
and 17 local schools in five states

Don Striker, Superintendent
Janice Elvidge, Education Coordinator

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Abstract: Students and teachers in six states documented today's views of selected Lewis and Clark journal entries using the methods and standards of 21st century scientists and scholars. The learning community included approximately 650 students and staff in 17 school districts who began serious work in the winter and spring of 2000. While the Internet was central to the project, hands-on activities (field trips and even a community play) also engaged student interest. Many will continue to add information to their portion of an expanding website that will become a national resource. Results of their work can be viewed at http://www.nwrel.org/teachlewisandclark/home.html

"A local well-known historian and Lewis and Clark buff (85-years young) took some of the students on a day trip to observe and take pictures of their assigned plants. She possesses a wealth of knowledge about local flora and owns many acres of land with much historical significance in relation to the Nez Perce Indians. She still writes a weekly column in the local newspaper and dedicated her column to our project one week." Kamiah, Idaho

"Jean Smith's students got press coverage when they went to the (Pompey's) Pillar and discovered that some of Clark's calculations were probably wrong."
Canyon Creek, Montana

"It was neat to see kids who weren't able to advertise their talents receive pats on the back from their fellow classmates: "Wow, Micah, that's cool" "how did you do that, Craig?" "How long did that take, Daniel?" Kimberly, Idaho

"Many of the students indicated this was one of the most interesting projects we did all year." Billings, Montana

"I designed lessons that taught how to judge the quality of a record. I used two texts on the same topic, one accurate and one that in reality was full of fiction. Just because it's printed, is it truth? We also learned how to read difficult text and how to read something in the context of the period, which moved us into a higher level of Oregon's benchmarks for reading skills. They also prepared the letters asking for permission to use pictures for our website. This led them to using the phone and e-

mail to find the right person, asking the right question, etc. Some museums were very good to work with so we chose not to use their pictures. It was a good learning experience for students to talk to these people." Newberg, Oregon

"Project requirements were minimal which allowed for creativity and diversity. That's my idea of a great learning community."

Purposes of the Project

The overall goals of our project were to demonstrate:

- How young people and adults today can re-explore their own communities and be co-creators of their futures.
- How an important milestone in history can be examined across the curriculum, not just to meet standards in the subject area of social studies (history, geography).
- How electronic tools today make research and documentation much easier than the quill pens and journals used under difficult field conditions by Lewis and Clark.
- How original sources from 200 years ago are still relevant for scholarly activities today. (applying research methods and tools associated with scientists, ethnographers, historians, economists, artists.)

Thanks to this project, we learned these things about Internet-based Learning Modules and Communities:

- How students and teachers, community volunteers and federal/state agencies can learn together at the local school level (covering new material neither has likely ever discovered before). Several projects called upon experts in their local community or in faraway places thanks to e-mail.
- How local schools can contribute something meaningful for a larger universe of schools to use. School types ranged from a parochial school in South Dakota to an alternative evening high school near Portland, from a rural Idaho school with 60%

Hispanic students to a unique Montessori option within a Montana public elementary school. Age ranges were from first grade to twelfth. One school's representative was a solo student working independently while another school involved nearly 200 in teams at three different grade levels. One student was being home schooled, but took part in this particular project with his community peers.

- How technology can help us update materials originally prepared 200 years ago. Students were typically amazed at the errors in writing 200 years ago and several teachers used this opportunity to help students see the importance of careful writing skills today. More importantly, perhaps, some students were able to recognize stereotypes and prejudices that are still present today.

Background

Participants in this project helped create a Web site that will be a prototype for others during the Bicentennial of the Lewis and Clark Expedition to be commemorated nationwide during the years 2003-2006. During 1999-2000, we only involved only a tiny number of schools located along the June 1805 to May 1806 segment of the Trail. The Lewis and Clark saga actually began in Monticello with the vision of Thomas Jefferson and ended in Washington, D.C., three years later with amazing stories about friendly Indian nations, flora and fauna never before known to science, abundant natural resources, imposing mountains — but no easy water route from the Missouri to the Pacific Ocean as everyone hoped.

Interest in the Lewis and Clark story is growing monthly. Teachers, in the meantime, are searching for curriculum resources they can trust. And the Lewis and Clark experts recommend one source: the original journals.

Lewis and Clark had to meet world-class standards, thanks to the education-minded Thomas Jefferson, who had brought Lewis to Washington to be his secretary in 1801. Scholars often visited the President's House for long evenings of discourse. Before he started recruiting his team, Lewis studied with the nation's leading scientists and medical experts of the time at the American Philosophical Society in Philadelphia. Lewis examined data from Canadian explorers and early seafarers along the Pacific Coast and even brought along a few reference books that would be helpful on the journey. Jefferson insisted that Lewis engage several persons as journal-keepers and make duplicate copies for safekeeping. Guidelines for their observations and journals were very precise, similar to the

standards we ask students to meet today. And just as in high-performance classrooms and corporations today, the Corps of Discovery had to become a disciplined work group that called upon each person's gifts and talents. Indeed, the story illustrates the cultural diversity of our communities today — embodied in the contributions of York, the African American slave; Sacagawea, the 16-year-old mother of Jean Baptiste Charbonneau, and many other American Indians whose interventions with the Expedition assured its success; and the European-American Corps members who came from diverse cultures and backgrounds and whose vital occupational and life skills were needed at critical times.

For 28 months, this team labored to map and document territory that doubled the size of a very young USA. Then they entered the mysterious Oregon country, which lay beyond. Most Americans of the time thought the Corps had vanished and were amazed when they returned to St. Louis in September 1806. Even space pioneers like John Glenn and Neil Armstrong would admit the challenges faced by Lewis and Clark were much more demanding than their explorations where probes had already been sent and communication was continuous.

Our product is evolutionary, growing as more teachers and students hear of the project and decide on a topic to pursue. It will never be "finished," yet it will meet strict criteria established by an advisory committee selected by the Corps of Education Partners (an arm of the National Lewis and Clark Bicentennial Council). The Web site itself will be maintained on behalf of the Corps of Education Partners at Northwest Regional Educational Laboratory in Portland as part of a "clearinghouse" web site focused on education resources for the Bicentennial (for a view of how this site might eventually look, go to www.nwrel.org/teachlewisandclark. It can be linked from any number of other relevant homepages — for example, through our own Fort Clatsop Home Page, through professional associations serving teachers (e.g., the National Education Association, the National Science Teachers Association), through tribal councils along the route, through other federal agencies (the Department of Fish and Wildlife, the Smithsonian's National Museum of Natural History, the Bonneville Power Administration), through education agencies (state departments of education, state historical societies, universities/colleges) and through community-based organizations (e.g., state geography alliances, state archaeology associations, Boy Scouts).

The FREE-sponsored project will be the "signature site" on this homepage. Our initial instructions to teachers were purposely vague to attract and test a variety of approaches. However, each teacher was asked to work with students to complete the following: summarize original journal references for their chosen topic; use words, photographs and video to describe this topic today; gather and

report evidence on how it has changed over 200 years; and predict something about its future using tools that scientists employ, such as computer modeling.

Seventeen schools participated, but only 16 are included in the website. The topics they selected and their location are:

- Appaloosa Horses of the Nez Perce: Beaverton (OR) high school
- Bitterroot/Clearwater-area flora/fauna: Kamiah (ID) middle school
- Chinook Tribe: Newberg (OR) elementary school
- Columbia (Celilo) Falls: Wishram (WA) K-12 after-school program
- Fort Clatsop area: Astoria (OR) elementary school
- Lemhi Shoshone area: Rupert (ID) elementary school
- Lolo Trail: Anchorage (AK) elementary
- Lower Columbia flora: Portland (OR) middle school
- Mapmaking: Billings (MT) middle school
- Missoula area: Missoula (MT) elementary school
- Montana streams named by the Expedition: Helena (MT) Montessori school
- Sacajawea: St. John-Endicott (WA) high school
- Sioux Tribe: Aberdeen (SD) elementary school

The seventeenth school, Mt. Spurr Elementary in Anchorage AK, was unable to complete all elements of the module when the teacher transferred stateside. However, this example illustrates how the project can be conducted worldwide, thanks to the Internet-based learning community concept. The teacher at Mt. Spurr had lived in Montana at one time and opened e-mail doors for students to interview persons on-line in Montana and obtain images from actual locations along the Lolo Trail and other key points.

An essential feature of each school's project is the linkage to education standards in their state and/or relevant national standards that might apply. (We provided teachers with an outline of how this might look in our invitation to participate). Over the ensuing months, each school took a slightly different approach, primarily due to developmental considerations of the students they worked with. Some

schools used a very "hands-on" approach to supplement the computer applications and some defined technology to include telephone conferencing, video production and—in one case—a live play produced for the community. NWREL's standards for web sites do not allow multimedia presentations (e.g. video clips) because these are typically difficult for many schools to access. The Kimberly ID teacher's comments summarize the experience of most teachers: "First, students were readers, documenting information from the journals. Next, the students became writers, paraphrasing and interpreting information from the journals. Then, the students became web page designers, plugging their data into their "slots" on the main web site. Over and over, students were communicators with each other as they coordinated the project."

Our recruitment for participating schools during Year 1 was broad — "who out there is interested in doing this?" We started with those who are willing to try. The teacher's job was to:

- Inspire students to find applications of subject matter to meet their state's standards (usually reflecting national standards in each content area)
- Maintain integrity to the Lewis and Clark story (as anchored in the original journals, supplemented by scholarly records)
- Involve local and state resources (face to face) and worldwide resources (via Internet and other technological tools, e.g., conference calls, fax)
- Meet standards for Web site inclusion as set by the project advisory committee and the national Corps of Education Partners

City	School	Teacher	K	1	2	3	4	5	6	7	8	9	10	11	12	Notes
Aberdeen, SD	Roncalli HS	Brad Tennant and Tim Beck										51				Ages 14 & 15
Anchorage, AK	Mt. Spurr Elem	Bonnie J. Graham					25									3 Learning disabled, 1 level 3 (blind)
Astoria, OR	Astoria Elem	Tom Wilson					5									1 attending and following through difficulty
Astoria, OR	Astoria MS	Matt Hensley								2						
Beaverton, OR	Merlo Station HS	Bruce Campbell												6	6	
Billings, MT	Canyon Creek Elem	Susan Dreyer							25	26	25					3=minorities 74=ethnic white
Florence, MT	Florence-Carlton School	Jackie McCann						21								1 downs Syndrome, 3 Chapter I
Helena, MT	MSI (Edwards Elem)	Gil R. Alexander and Joyce Nashtsheim					10	10								2=E1, 1=B, 3 learning
Kamiah, ID	Kamiah MS	Amy Woods						45	45	45	45					5=developmentally delayed 18=Nez Perce Indians 3=hispanic
Kimberly, ID	Kimberly MS	Terry Bohan									20					
Missoula, MT	Lewis and Clark Elem	Leslie Ferrell						24								3 native am, 1 japanese am, l latino, 5 IEP, 4 g&T
Newberg, OR	Edwards Elem	Marilyn Jackson						29								4=ESL, 3=individual educational plan, 4=talented, 6 attention difficult, 4 med, 2 not on med
Portland, OR	Harriett Tubman MS	Judith Lampi							16							1=indian, 2=NA, 13=white
Rupert, ID	Big Valley Elem	Melody Wysong						27								3=hispanic limited english
St. John, WA	St. John-Endicott HS	Richard Scheuerman												1		
W. Billings, MT	Will James MS	Marlene Zentz							120							
Wishram, WA	Wishram	Joan Chantler	3	3	3	5	6	4	6	2	2	2	2	2	2	1=Tribal elder, 1 HS exchange student who spoke Japanese 2=special ed 8=title students 6=NA 1=Japanese
GRAND TOTAL	**STUDENTS**		3	3	3	5	46	160	212	75	92	2	2	9	2	614

We were fortunate to have access to Gary Moulton, editor of The Journals of the Lewis and Clark Expedition, as a visiting scholar at Fort Clatsop for 10 weeks in summer, 1999. His scholarly example was an inspiration for the entire effort.

Who We Are

The project emerged from discussions among Lewis and Clark enthusiasts, several of whom are members of a loosely-knit group of organizations known as the Corps of Education Partners. Members include the National Lewis and Clark Bicentennial Council, the Region 8 office of the U.S. Department of Education, Northwest Regional Educational Laboratory, Mid-contintent Regional Laboratory for Education and Learning, the University of Montana and the National Education Association. The real players in the story were:

A. Students and their teachers

The following chart illustrates the schools participating, the teachers' names and the students who were involved and any unique characteristics of some of the students who were engaged in various learning activities. In most instances, a single teacher was responsible for ongoing activities, with other staff (such as the building or district's technology specialist) helping out as needed.

B. Fort Clatsop National Memorial (project administrator)

Education liaison staff at Fort Clatsop managed the project as a complementary initiative to other popular education offerings available through this popular National Park Service site.

C. Northwest Regional Educational Laboratory (NWREL), Portland

NWREL is playing a leadership role in organizing the Corps of Education Partners and in particular Dr. Larry McClure was the ongoing liaison. Robey Clark, an Indian education leader in the region, provided valuable ideas and support in his dual role at NWREL as a staff member both for the Laboratory's Comprehensive Center and in technology applications for tribal organizations. The Laboratory operates the Northwest Education Technology Center for the U.S. Department of Education and its staff are working

continually in Idaho, Montana, Oregon and Washington — where Lewis and Clark spent some of their most difficult and scenic months. NWREL also operates a Mathematics and Science Center and an Equity Center that provided no-cost support to teachers and students as appropriate. NWREL's Mathematics and Science Center has already produced two resource kits for upper elementary and middle school teachers that relate measurement skills to the Lewis and Clark story.

D. Resource Organizations

Under this category are dozens of agencies (private and public) whose expertise and resources may be useful for students and teachers conducting their research. These partners would make classroom presentations, host students and teachers in the field, and serve as mentors or advisers to student groups on a particular topic they're investigating. For the participating schools, several federal and state agencies lent their resources or personnel to provide advice and assistance: the U.S. Department of Fish and Wildlife, the Bureau of Land Management, the Earth Observation System (NASA-funded) program at the University of Montana, state museums, a state forestry department, Indian tribes.

Approach

Schools interested in participating in the "updating" project were invited to apply for a $1000 mini-grant that could be used to underwrite various project expenses. We projected that 20 schools would participate, leaving $30,000 for other project costs (teacher travel, substitute costs, Web site development, advisory committee participation, evaluation, technical assistance with curriculum standards, teacher reviewers of curriculum). In actuality, we involved 17 who agreed to accept the terms of the "memo of understanding" that was signed by the principal and teacher. Only 16 school contributions are featured on the website because a teacher left before all details were finalized. The remaining funds were allocated back to the 16 sites based on their scope (e.g. Kamiah middle school involved three separate grades with about 45 students each); some other "left-over" dollars were allocated to schools to buy Lewis and Clark-related reference materials so that students could continue building their sites in future years.

The kinds of technologies and software programs students and teachers used included:

Computers for word processing, e-mail, website building
Digital cameras
PhotoVista software

PowerMac G3
Video cameras
HyperStudio
PowerPoint
GIS
GPS

Evaluation

NWREL was responsible for conducting the evaluation of this project. Formative evaluation feedback provided the project coordinator with information on how well the sites were doing and an end-of-project questionaire (on line) to gather summative impressions from the teachers. No tests were directly administered to students to measure learning.

Areas that took more time than we thought:

1. Obtaining permissions from copyright holders.

Some teachers approached this as a learning activity for students, requiring that the students themselves write and call the copyright holder to obtain permission to use an image or quote. The most striking example of this was the Newberg OR fourth-grade class where teacher Marilyn Jackson required students to follow through on all these details.

2. Working through school district bureaucratic structures. Said one teacher: "School districts put a lot of barriers up. You have to get clearances to go out and ask for funds. Then there is paperwork if you want to go out beyond the school campus and the school district instantly takes 24% if you do win a grant. Most of the time it's not worth it." A teacher in another state had similar experiences: "My district's purchasing policies delayed vital materials I needed until the project was over."

3. Having access to a small grant helps, even though the majority of teachers would do this again if the funds weren't available. Said the Newberg OR teacher: "Most teachers already dig into their pockets everytime they turn around so $200 for books is a drop in the bucket to what I spend a year. Is it right? No. But I want my kids to have opportunities and not just a textbook with one and a half pages on Lewis and Clark."

Areas that turned out to be weak:

1. Incorporating Native American Perspectives

The Lewis and Clark story must be told "from the banks" as well as "from the river" and this was an important part of the original objectives. We encouraged teachers to push this issue to the greatest extent possible. Some were able to accomplish it better than others. In the process, we discovered some valuable information about tribes along the trail and which ones have websites. However, we also discovered that not all tribal websites have extensive cultural information. The number of Native American websites is large and growing, however, and if the project continues we believe students will be able to find more and more information on interactions between Lewis and Clark and the more than 50 tribes they encountered. Indeed, the National Lewis and Clark Bicentennial Council has hired a full-time liaison with tribes to assist in planning for the Bicentennial. Some tribes are further along on this journey than others.

For the FREE project, one of the most in-depth involvements between students and Native Americans was the Beaverton (Merlo Station High School) project located in the suburbs near Portland. Thanks to an earlier connection between this school and the Nez Perce Tribe in Idaho and Oregon, students working on the FREE project traveled 1500 miles between their school and the Nez Perce reservation where they interacted with elders and leaders who are experts in Apaloosa horses. The tribe was so impressed by what these largely Euro-American students had don that they publicly honored the young people at a pow wow in Lewiston ID. The students and adult chaperones joined in a ceremonial dance. A fourth-grade class invited a retired tribal elder to their school, but he was not able to schedule a convenient time so the teacher arranged for the class to have a conference call with him. However, a different school was successful in getting tribal cultural representatives to work with their students on a face-to-face basis.

Problems We Encountered

Hardware and software issues, and the teachers' skills in using these tools, continue to be an issue in many school districts. Many schools now have fairly advanced technologies accessible to them, but teachers have not been able to keep up with those rapid changes. Occasionally we discovered incompatibilities in software or teachers had difficulties getting their building or district's technology coordinator to help with certain project. E-mail always seemed to work, however.

Things We Learned

The topic is one that attracts teachers even off the trail. Our most visible example of this was the elementary teacher in Anchorage who involved her children in life along the Lolo Trail in Idaho where she used to live.

Students really enjoy hands-on learning even with technology-based activities. Several teachers engaged students in outdoor projects and field trips, invited local resource persons to visit the class, and conducted service projects for others. One school celebrated the completion of their project with a buffalo burger barbecue lunch at school.

Regarding academic outcomes for students, the Kamiah staff shared these observations: "Students were involved in a variety of tasks, such as reading to gain knowledge about their selected flora or fauna species, documentation of resources from books and Internet sites; typing the information in the web page template; Internet searches to find information on their topic; editing text for final copy; using the scanner to transfer picture images to their web page; calculating area and distance for the Nez Perce games; drawing illustrations of Lewis' woodpecker and Clark nutcracter using graphs; and general use of glossaries, table of contents and appendices in doing research."

Community organizations will help if asked. And for particularly-ambitious teachers, such as the Kimberly ID teacher whose students wanted to build an authentic dugout canoe, outside help would have been useful to locate a tree of sufficient size to do the project. They were never able to accomplish this dream.

Students with special needs can do the things we challenge them to do. In one project, a blind child did all the work in Braille. Several projects had success involving students with a variety of learning and behavioral challenges. Students with different language and cultural backgrounds seemed particularly attracted to the story.

All are getting more proficient with e-mail. As teachers increase their skill levels, they are using resources heretofore hard to get. Two of our project teachers discovered mutual interests in the same Lolo Pass region of Idaho and maintained contact.

Pressures on teachers to make sure students perform well on state assessments is impacting their willingness to incorporate innovative ideas like these.

The Kimberly technology teacher worked with the school's social studies teacher to develop a student-made test on the Lewis and Clark content (aimed at partial fulfillment of Idaho's 8th grade standard standard: "understand the expansion and exploration of the U.S. between 1800-1861). He describes the approach this way: "All students viewed the Ken Burns/PBS four-hour documentary.

While viewing, each student was assigned to keep their own journal for each video segment and write a test question based on that segment. By the end of the series, I had 100s of questions to use for the test."

Astoria 4th grade teacher sees demonstration to standards as key outcome: "The final product is proof enough that we met the standards. If they were not able to meet them (reading, interviewing, documenting), the final product would not have been accomplished. I used their writing as work samples for state-required portfolios."

Legacies of this Project

A noteworthy outcome of this project occurred at Newberg OR (with a sizable Hispanic school population): "My (fourth grade) students were appalled at the way Lewis and Clark made value judgements about the Chinook (Indians). They recognized the prejudice and were upset. Then to watch them come to grips with this by reading other material of that time in history. They worked very hard to write a sentence that explained how Lewis and Clark should be viewed in this day and age. They began to see how we are still in this mode in lots of ways to this day in the (tribe's) fight for recognition. They are beginning to view other statements made today in the media that are similar to the way Lewis and Clark looked at things. They are aware of the problems and are not comfortable with this. They are on their way to changing the world!"

The federal Bureau of Land Management was so impressed by what the students at Will James Middle School (Billings) did that they loaded the material on their national web site.

One teacher observed: "The principal student involved in our project is highly intelligent, but significantly deprived of social skills. This project contributed in very positive ways to her feelings of self-worth."

And the Helena MT coordinator observed of student learning: "they became capable of defending their researched data when it was questioned."… and were able to refer back to the exact sources of their information to illustrate the conflicts that were present in the literature.

In summary

One teacher's comment on overall management of this prototype project seems to summarize the overall evaluation NWREL gathered: "Project requirements were minimal which allowed for creativity and diversity. That's my idea of a great learning community."

During school year 2000-2002 after the Federal funds are gone, all schools report they will continue to refine their sites as new students come onto the scene. All agreed this was a good model for engaging students in important issues and activities at the local level using an interdisciplinary approach.

Attachment A: (model module provided to teachers at the beginning)

Example of a Module Description
focused on one element in the Lewis and Clark Journals

The project steering committee, with help from the Bicentennial Council's Corps of Education Partners, will develop a framework that local schools must agree to follow in developing their Web site. Timelines will be developed to ensure completion of their project. The format might resemble this:

Subject: The wapato plant (*Sagittaria latifolia*) and its uses. This water-loving plant thrives in marshy areas, pond and lake margins, and backwater areas along the Columbia River and was important to the expedition during the six-month fall-winter period of 1805-06. The edible portion of the plant is a tuber or root resembling a hen's egg in size and shape.

Journal References: Lewis and Clark journals mention the plant approximately 90 times with various spellings. Each of these would be listed and referenced to the Moulton volumes by students themselves.

Graphics: Students would draw a detailed picture of the wapato plant and go out into the field to photograph the plant at various stages in its life cycle. Parts of the plant would be identified. These would be digitized for inclusion on the Web site.

Description: Drawing on print materials, guest experts and Internet searches, students would describe what they find out about its growing habits, range, cultivation, predators (carp, waterfowl, cattle, hogs), harvesting techniques, storage, processing into food, nutritional value, and include this narrative in their own words, properly referenced. If students gathered and cooked the roots, there might be photos of this process and pictures with quotes of students describing the taste.

Interesting facts: One Washington town bears the name Wapato, so an interesting "side trip" via Web-site link might be taken to that community's Chamber of Commerce homepage for stories on how the citizens chose the name. Historical societies might reveal information such as the fact that the area where the Willamette River flows into the Columbia today was known as Wapato Valley and that Lewis and Clark gave present-day Sauvie Island the name "Wapato Island."

Learning Projects that Worked: Here is where students and teachers would describe activities they did, with links to the actual lesson plan itself and any products they wish to disseminate. Teachers will list state or national standards they addressed in each

activity and evaluations conducted to measure student learning. A common format for summarizing the project would be suggested. For example:

- A Family and Consumer Science class might conduct a nutritional analysis of wapato following today's FDA standards for food labeling per serving (carbohydrates, fiber, fat, sodium, sugars, caloric values, etc.)

- Advanced Math students might use statistics to project the likely spread of the remaining wapato patches based on information gathered from existing databanks in various state and federal agencies.

- A fourth-grade teacher might ask students to describe wapato both in words and in numbers (measuring the length, width and circumference of 10 tubers they harvested and determining the average).

- An economics teacher might explore with students how to determine the monetary value of wapato as a trading item 200 years ago based on today's market standards.

- Eighth-grade science students could develop a demonstration garden in a community wetlands area so tourists could come see what the plants look like today.

- In cooperation with the school's desktop publishing and graphic arts (printing) class, 11th-grade art students develop a coloring book to sell to tourists and pre-school students in their community featuring plants Lewis and Clark encountered in their area, featuring wapato as one example. This also goes on the Web as a free download.

Perspectives of American Indians: Students might research any remaining members of local tribes who still harvest and use wapato. These oral and written interviews would be included with photographs (with permission). If wapato has been the subject of early American Indian art and technology (e.g., petroglyphs, tools), then this section would include that information with photos digitized (by permission). Various tribal words for wapato would be listed (e.g., Chinook jargon) and spelled phonetically so students could say the word somewhat accurately.

Perspectives of advocacy groups: Teachers and students might track down federal agencies (state agriculture department, U.S. Fish and Wildlife Service, Bureau of Land Management), private organizations (Audobon Society, Nature Conservancy, Cattlemen's Association, Ducks Unlimited) and summarize their observations on wapato today.

What might the next 200 years bring: In this section, students and teachers would use futurists' methodologies, and the data gathered above, to conjecture what might happen to wapato over the short and long term.

Bibliography: Books, articles, research studies that are easily accessible to users in libraries or via Internet.